



® Knowledge Beyond Measure.

# Water-Based Condensation Particle Counter

Model 3789



## Expand your research capabilities.

Water-Based Condensation Particle Counters (WCPCs) deliver accurate concentrations of particles in gases while making use of safe, eco-friendly and easily available distilled water. When combined with a particle sizer, nanoparticle size distributions and concentration can be quantified from <2 nm to nearly 1,000 nm.

The 3rd generation of WCPCs comes with numerous enhancements:

- Unprecedented reliability
- Low maintenance
- Adjustable counting efficiency

### Features and Benefits

- Selectable counting efficiencies
- Predefined setpoints of 50% counting efficiency for 2.2 nm and 7 nm (sucrose)
- Single particle counting up to  $2 \times 10^5$  particles/cm<sup>3</sup>
- Distilled water as convenient, eco-friendly and safe working fluid
- 50 Hz data acquisition
- Built-in Scanning Mobility Particle Sizer™ (SMPS™) compatibility
- Large internal memory for 1+ year of data
- Remote control and data download through Ethernet

### Applications

TSI's versatile WCPC is suitable for most particle counting applications, but its ability to detect down to 2.2 nanometers make this WCPC ideally suited for:

- Particle formation and growth studies
- Nanotechnology research or process monitoring
- Inhalation or exposure chamber studies
- Long-term, uninterrupted air quality monitoring
- Parts cleanliness testing in semiconductor manufacturing
- High-purity process gas testing in semiconductor manufacturing

## Specifications

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### Particle Size Range

User-selectable 2.2 nm and 7 nm min. detectable particle size (D50), verified with monodisperse sucrose particles

Custom setpoint for growth section temperatures

### Particle Concentration Range

Up to 200,000 (2x10<sup>5</sup>) particles/cm<sup>3</sup>

Single particle counting with continuous live-time coincidence correction

### Particle Concentration Accuracy

±5% at <200,000 particles/cm<sup>3</sup>

### False Background Counts

<0.01 particles/cm<sup>3</sup> based on 12 hour average

### Response Time

Response time described in percentage to concentration step change ~0.6 s for 90% (T10-90, T90-10)

### Flow System

0.3 L/min aerosol flow

0.6 or 1.5 L/min inlet flow

2.5 L/min inlet flow option

### Liquid System

Distilled water is used as working fluid

Water consumption approx. 43 mL per 24 h

### Communication Interfaces

Embedded touch-display

Pulse output: BNC connector, TTL level pulse, nominally 350 nanoseconds wide

USB type C to connect CPC directly to computer operating control software Aerosol Instrument Manager (included)

Ethernet port (8-wire RJ-45 jack, 10/100 BASE-T, TCP/IP) for remote connection. Automated configuration (DHCP) of network settings

### Ambient Operating Conditions

Temperature 10 to 35°C (50 to 95°F)

Humidity 0 to 90% RH, noncondensing

Pressure 75 to 105 kPa (0.75 to 1.05 atm)

Specifications are subject to change without notice.

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### Accessories

#### Required

Electrical: 100 to 240 VAC, 50/60 Hz, 200 W maximum

Auto recovery from power failure built in

#### Included

Fill and drain bottles

Aerosol Instrument Manager for count products license

USB C to A cable for connecting to a computer

### Data Storage

Internal memory lasts for approx. 1 year of data at 50 Hz data rate

### Dimensions (H x W x D)

30.7 cm x 18.3 cm x 40.4 cm (12.1 in. x 7.2 in. x 15.9 in.)

without fill and drain bottle attached

### Weight

8.2 kg (18.2 lbs)

### To Order

#### Water-Based Condensation Particle Counter

Specify	Description
3789	WCPC

#### Optional Accessories

Specify	Description
3789-WKIT	Wick replacement kit
3750200	Sampling System for Atmospheric Aerosol
RHT3000	Aerosol Humidity and Temperature Sensor